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TITLE : MANUFACTURE OF RAIL

ABSTRACT : PURPOSE: To manufacture the high tensile rail provided with the fine pearlite structure and the deep uniform hardened layer, by heating the steel of a specified component, which stably forms the pearlite structure, to a temperature above A_{c3} point, and by cooling under a limited condition for causing the isothermal transformation.

CONSTITUTION: The steel, containing 0.60~0.82wt% C, 0.1~1.0% Si, 0.40~ 0.60% Mn, and the balance consisting of iron and inevitable impurities, as the fundamental component, and besides, if necessary, containing one or more of 0.2~ 1.0 % Cr and 0.02~0.10% V, is heated to above A_{c3} point. Next, the steel is cooled from above austenitic region to the temperature range 450~600°C, at a cooling speed 3~30°C/sec, and the isothermal transformation is caused in the temperature range 450~600°C. Hereby, the high tensile rail can be manufactured being provided with the fine pearlite structure of Hv+340, and the uniform hardened layer of above 10 mm depth. Depending on this rail, the reduction of abrasion due to the heavy weight of axle, and the prevention of the shelly cracks to be generated at high speed running, can be contrived.

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